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Configuring DECnet Services

NORTEL NETWORKS™

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Preface

This guide describes DECnet services and what you do to start and customize DECnet services on a Nortel Networks router.

Before You Begin

Before using this guide, you must complete the following procedures. For a new router:

- Install the router (see the installation guide that came with your router).
- Connect the router to the network and create a pilot configuration file (see *Quick-Starting Routers*, *Configuring BayStack Remote Access*, or *Connecting ASN Routers to a Network)*.

Make sure that you are running the latest version of Nortel Networks BayRS™ and Site Manager software. For information about upgrading BayRS and Site Manager, see the upgrading guide for your version of BayRS.

Text Conventions

This guide uses the following text conventions:

angle brackets (< >)	Indicate that you choose the text to enter based on the description inside the brackets. Do not type the brackets when entering the command. Example: If the command syntax is: **ping** <*ip_address*>, you enter: **ping 192.32.10.12**
bold text	Indicates command names and options and text that you need to enter. Example: Enter **show ip** {**alerts** | **routes**}. Example: Use the **dinfo** command.
braces ({})	Indicate required elements in syntax descriptions where there is more than one option. You must choose only one of the options. Do not type the braces when entering the command. Example: If the command syntax is: **show ip** {**alerts** | **routes**}, you must enter either: **show ip alerts** or **show ip routes**, but not both.
brackets ([ ])	Indicate optional elements in syntax descriptions. Do not type the brackets when entering the command. Example: If the command syntax is: **show ip interfaces** [**-alerts**], you can enter either: **show ip interfaces** or **show ip interfaces -alerts**.
ellipsis points (. . .)	Indicate that you repeat the last element of the command as needed. Example: If the command syntax is: **ethernet/2/1** [<*parameter*> <*value*>] **. . .** , you enter **ethernet/2/1** and as many parameter-value pairs as needed.

italic text	Indicates file and directory names, new terms, book titles, and variables in command syntax descriptions. Where a variable is two or more words, the words are connected by an underscore. Example: If the command syntax is: **show at** <*valid_route*> *valid_route* is one variable and you substitute one value for it.
`screen text`	Indicates system output, for example, prompts and system messages. Example: `Set Trap Monitor Filters`
separator (>)	Shows menu paths. Example: Protocols > IP identifies the IP option on the Protocols menu.
vertical line (|)	Separates choices for command keywords and arguments. Enter only one of the choices. Do not type the vertical line when entering the command. Example: If the command syntax is: **show ip** {**alerts** | **routes**}, you enter either: **show ip alerts** or **show ip routes**, but not both.

Acronyms

This guide uses the following acronyms:

AFI	authority and format identifier
CLNP	Connectionless Network Protocol
DSP	domain specific part
ES-IS	End System to Intermediate System
IDI	Initial Domain Identifier
IDP	initial domain part
IS-IS	Intermediate System to Intermediate System

MAC	media access control
MIB	management information base
MTU	maximum transmission unit
NSAP	Network Service Access Point
OSI	Open Systems Interconnection
SMDS	Switched Multimegabit Data Service
WAN	wide area network

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Sydney, Australia	61-2-9927-8800
Tokyo, Japan	81-3-5402-7041

Chapter 1
DECnet Overview

This chapter shows how Nortel Networks router software works with DECnet services and describes the following:

- Organization of end nodes and routers in a DECnet network
- Transmission of messages from the Nortel Networks router through the DECnet network
- Routing decision process for a DECnet network
- DECnet IV to V Transition feature
- Purpose of static routes
- Static adjacency support

DECnet Network Organization

A DECnet network contains two types of nodes: end nodes and routers. End nodes send and receive messages. Routers transmit messages to end nodes and other routers on the network.

DECnet Phase IV Organization

DECnet Phase IV is a networking protocol that supports large networks (up to approximately 64,000 nodes). You can divide each network into as many as 63 distinct areas; each area contains up to 1023 nodes. You must assign to each area an Area ID, unique to the network. You must also assign to each node within an area a Node ID, unique to the area.

Together, the Area ID and Node ID form a 16-bit DECnet Phase IV address (Figure 1-1). The first 6 bits identify the area in which the node resides; the last 10 bits identify the node itself. Each DECnet Phase IV address must be unique within the network.

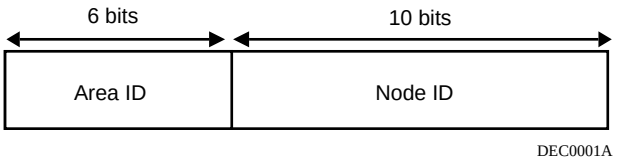


Figure 1-1. DECnet Phase IV Address

A Nortel Networks router running the routing software for a DECnet Phase IV network can service multiple areas; that is, you can assign a DECnet Phase IV address to each of the router's individual interfaces, rather than to the entire router. For example, if a router resides in multiple areas (has circuits connecting to more than one area), you assign an Area ID and Node ID for each area to which it connects. A router can also have several interfaces (each one with a unique Node ID) in the same area.

In Figure 1-2, circuits E21 and E22 have different DECnet addresses, even though they connect to the same router. Note that each circuit's address is still unique within its area and within the DECnet network.

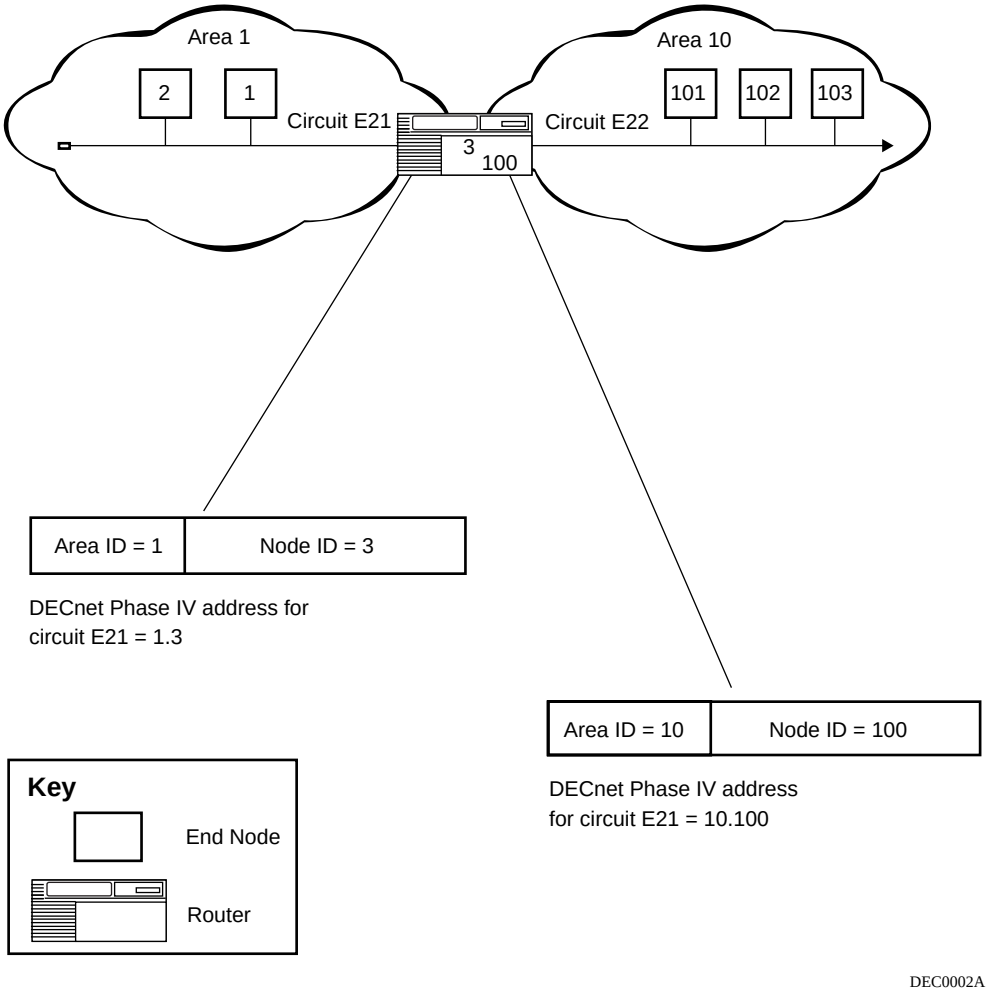


Figure 1-2. Nortel Networks Router with Multiple DECnet Addresses

DECnet Phase V Organization

DECnet Phase V is an implementation of the Open Systems Interconnection (OSI) Connectionless-mode Network Layer protocols. These protocols include Connectionless Network Protocol (CLNP), End System to Intermediate System (ES-IS) protocol, and Intermediate System to Intermediate System (IS-IS) protocol.

Each system in a DECnet Phase V network is assigned a Network Service Access Point (NSAP) address. Each DECnet Phase V NSAP address must be globally unique and can be from 10 to 20 bytes in length. However, a local DECnet network does not need a unique address.

For more information about Phase V network organization and addressing, refer to Chapter 1 of *Configuring OSI Services*.

Routing DECnet Packets Across the Network

The Nortel Networks routing software for DECnet services uses a datagram service to route packets through the DECnet network. Routing within an area is called Level 1 (or intra-area) routing; routing between areas is called Level 2 (or interarea) routing.

You can configure the Nortel Networks routing software to perform either *Level 1 and Level 2* routing, or to perform *Level 1 Only* routing.

- Use Level 1 and Level 2 routing to maintain paths to all areas within a DECnet network.
- Use Level 1 Only routing to maintain paths to only those systems within the router's local area. Level 1 Only routing prevents the sending of Level 2 routing updates, thus reducing traffic on an interface.

By default, the Nortel Networks routing software for DECnet services performs both types of routing. When the router performs both Level 1 and Level 2 routing, you can configure each router interface as either Level 1 and Level 2, or as Level 1 Only.

When you configure the router to perform Level 1 Only routing, the router maintains paths only to those systems within its local area. When the router performs Level 1 Only routing, you must configure all router interfaces as Level 1 Only.

When a Nortel Networks router receives a packet, it examines the destination address contained in the packet header. If the destination address is within the same area as the router, the router forwards the packet toward the destination system using the least-cost path. If the address is to another area, the router behaves differently depending on whether the interface performs Level 1 and Level 2 routing or Level 1 Only routing:

- If the router interface performs both Level 1 and Level 2 routing, the router forwards the packet to the specified area using the least-cost path.
- If the router interface performs Level 1 Only routing, the router forwards the packet to the nearest Level 2 router.
- If the router and all of its interfaces perform Level 1 Only routing, the router forwards the packet to the nearest Level 2 router.

The Routing Process

Routing a DECnet packet through the network involves

- Updating adjacent routers on the availability of surrounding nodes and circuits
- Listening for messages from adjacent routers identifying available nodes and circuits
- Determining the routing path with the least cost
- Forwarding the packet to the specified adjacent node

Update Process

The Nortel Networks router software for DECnet services continually monitors the circuits directly attached to it. It periodically receives routing control messages from its adjacent routers. These routing updates inform the router of the current network topology. For example, if a circuit on a router fails, or another circuit is added, the network topology changes. The router then generates and transmits routing updates to all adjacent routers informing them of the changes. Timers control how often the router sends out updates.

Routing updates describe which nodes in the local area are reachable (called node or Level 1 topology updates), and which other areas in the network are reachable (called area or Level 2 topology updates). Routers use this information to update their routing tables.

Listening Process

The router periodically receives *Hello* messages from its adjacent routers, informing it of their identity and of the circuits the router can use to reach the adjacent nodes. The router stores this information in an adjacency table, thus creating a database of *next hops* to use to forward data packets. A hop is the logical distance between two nodes.

Decision Process

The router calculates the least-cost paths from itself to all other systems it can reach, using information it receives from other routers and stores in routing tables. If the least-cost path is disabled, or a node fails, the router finds an alternate path, if one exists.

Site Manager assigns every circuit on a DECnet network a default cost. During the decision process, the router running DECnet calculates the total path cost of forwarding a datagram along each possible path toward its destination. The total path cost is the sum of the costs of the outbound circuits that make up the path (Figure 1-3). The least-cost path is the one that the router prefers.

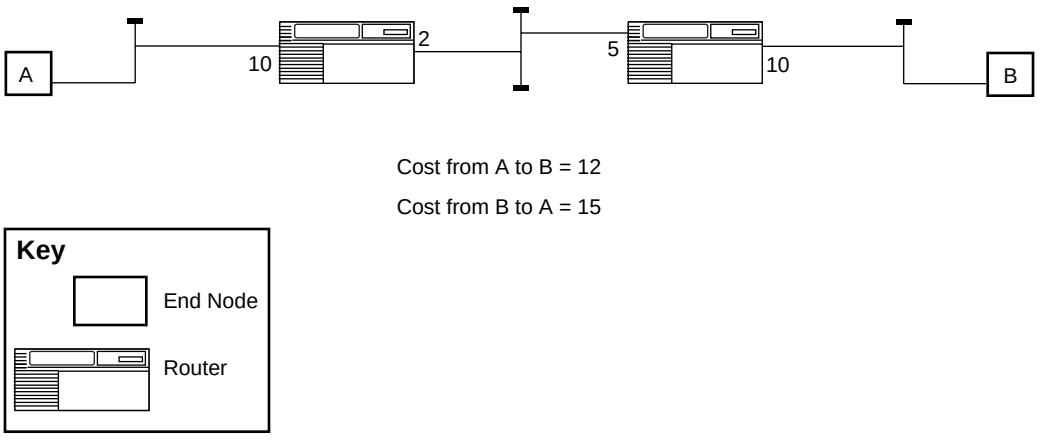


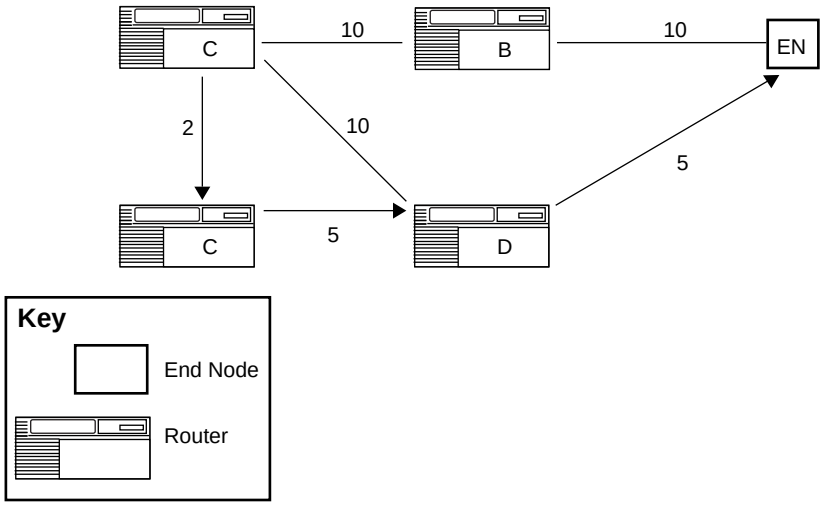
Figure 1-3. Calculating the Least-Cost Path

When deciding among multiple paths to a destination, the router chooses the path that is assigned a lower path cost over one assigned a higher cost, even if the lower-cost path is longer (Figure 1-4). If two paths have the same cost, the router chooses the path whose next hop has the higher address. The amount of traffic on a circuit does not affect the path selected by the router.

Once the router determines the least-cost path to a destination, it stores the identity of the corresponding adjacent router in its forwarding database. The adjacent router is the next hop on the path toward the destination.

The router keeps separate forwarding databases for intra-area and interarea routing. If you configure the router to perform Level 1 Only routing, it does not process Level 2 updates. Instead, it forwards interarea traffic to the nearest Level 2 router.

The complete distance (or number of hops) that a packet travels from the source to its destination is the path length. The maximum number of hops the routing algorithm will forward a packet to is called the maximum hops value. (To set the maximum hops value, refer to Chapter 3.) If the distance between the source and destination exceeds the maximum hops value, the packet is returned or dropped.



Router A wants to route a packet to the end node. Three different paths are available.

Router A forwards the packet along path choice 3 because it has the lowest Total Path Cost (12).

Path Choice	Path Length	Path Cost
A to B, B to EN	2 hops	20
A to D, D to EN	2 hops	15
A to C, C to D, D to EN	3 hops	12

DEC0004A

Figure 1-4. Least-Cost Path to a Destination

Forwarding Process

When a router receives a packet, it examines the destination address contained in the packet header to determine whether to route the packet locally (intra-area) or forward it to another destination (interarea).

Table 1-1 shows how the router forwards a packet, based on the destination address in the packet header and whether the router is configured for Level 1 Only routing or Level 1 and Level 2 routing.

Table 1-1. Router Forwarding Based on the Destination Address in the Packet Header

Destination Address	Router Configuration (Level 1 and Level 2 or Level 1 Only)	Router Action
Intra-area	either	Forwards the packet toward the destination system.
Interarea	Level 1 and Level 2	Forwards the packet to the next-hop router, node, or end system specified in its forwarding database.
Interarea	Level 1 Only	Forwards the packet to the nearest Level 2 router.
Unknown	either	Returns the packet to the source node if the return to sender flag is set in the data packet.
Unreachable (for example, if the maximum hops value is exceeded)	Level 1 and Level 2	Drops the packet.

The Designated Router

You assign a *designated router* to each circuit in a DECnet network. If an end node on an Ethernet segment receives a packet it cannot forward (either because the destination node's address is not in the end node's destination address cache, or the destination node does not reside on the circuit), the end node forwards the packet to the designated router. The designated router then forwards the packet toward the destination.

You specify a designated router by assigning a router the highest priority value among all routers on the Ethernet circuit. If you do not choose a designated router, or if you assign two or more routers the same priority, the router assigned with the highest Node ID becomes the designated router by default. See Chapter 3 for details on assigning the designated router.

DECnet IV to V Transition

The DECnet IV to V Transition feature provides the following capabilities:

- Routers running DECnet Phase V can map DECnet Phase IV network layer addresses to compatible Phase V NSAP addresses, and convert Phase IV data packets to Phase V Connectionless Network Protocol (CLNP) packets before forwarding them to a Phase V end node.
- Routers running DECnet Phase IV can map DECnet Phase V NSAP addresses to compatible Phase IV addresses, and convert Phase V CLNP packets to Phase IV data packets before forwarding them to a Phase IV end node.
- Routers running Phase V can learn and advertise adjacent Phase IV end node addresses.
- Routers running Phase IV can learn and advertise adjacent Phase V end node addresses.
- Routers running DECnet Phase IV or DECnet Phase V can forward packets without translation when routing their native protocols.

Translating DECnet Addresses

With the DECnet IV to V Transition feature enabled, a router can always translate a DECnet Phase IV network layer address to a Phase V NSAP address. However, because a Phase V address is larger than a Phase IV address, a router can translate a Phase V address only if it is Phase IV-compatible.

A Phase V address is Phase IV-compatible if:

- The leading bytes of the Phase V address match the configured local Phase IV Prefix. The local Phase IV Prefix defines the addresses eligible for translation within a local Phase IV routing domain.
- The high-order value of the Phase V System ID is AA000400, which is the DECnet architectural constant.
- The Area component of the Phase IV address in the Phase V System ID is the same as the Area field of the Phase V Area Address.

Figure 1-5 shows how a router maps a DECnet Phase V address so that it is Phase IV-compatible.

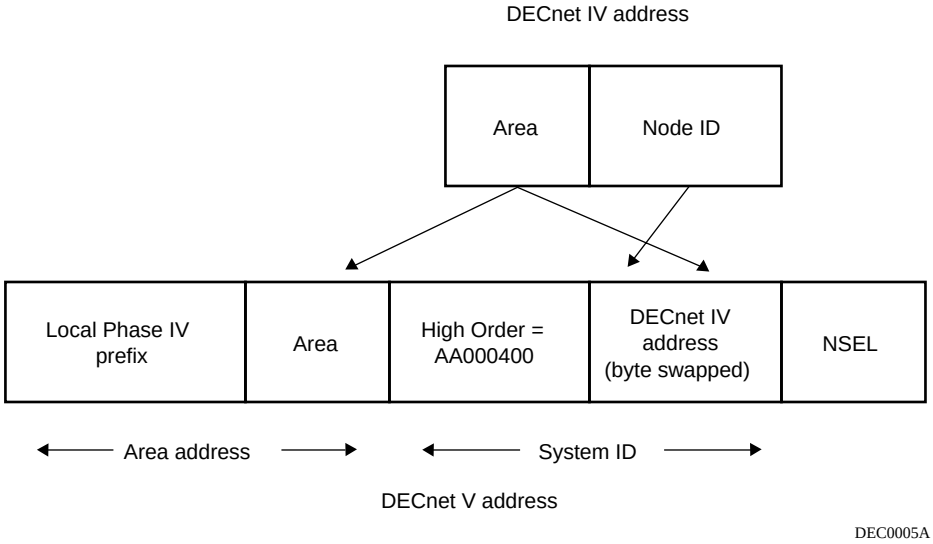


Figure 1-5. DECnet Phase IV to Phase V Address Mapping

The local Phase IV Prefix and Area fields of the Phase IV-compatible address make up the *Area Address*. The Area Address identifies the area in a DECnet network where a node resides. The High Order and DECnet IV Address fields of the Phase IV-compatible address make up the *System ID*. The System ID identifies a node within an area.

Translating Data Packets

With the DECnet IV to V Transition feature enabled, a router can always translate a Phase IV data packet to a Phase V CLNP packet. However, there are restrictions when a router translates a Phase V packet to a Phase IV packet:

- The packet cannot be fragmented.
- The packet must fit the Phase IV maximum transmission unit (MTU) size of 1498 bytes.

Phase IV to Phase V

A router running DECnet Phase IV always attempts to forward a Phase IV data packet by looking up the destination address in the DECnet Phase IV forwarding tables. If you enable the DECnet IV to V Transition feature, the router performs the following actions:

1. If the router does not find the destination address in the Phase IV forwarding table, the router maps the Phase IV address to a Phase V address and looks up its destination in the Phase V forwarding table.
2. If the router finds the destination address in the Phase V forwarding table, the router running Phase V translates the source address and Phase IV data packet header to a Phase V CLNP packet header.
3. If the router does not find the destination address in the Phase V forwarding table, the router running Phase V returns the packet to the router running Phase IV for error processing.

Phase V to Phase IV

In the same way, a router running DECnet Phase V always attempts to forward a Phase V CLNP packet by looking up the destination address in the DECnet Phase V forwarding tables. If you enable the DECnet IV to V Transition feature and the router does not find the destination address, the router performs the following actions:

1. If the address is Phase IV-compatible, the router maps the Phase V address to a Phase IV address and looks up its destination in the Phase IV forwarding table.
2. If the router finds the destination address in the Phase IV forwarding table, the DECnet router running Phase IV translates the source address and Phase V CLNP packet header to a Phase IV data packet header.
3. If the router does not find the destination address in the Phase IV forwarding table, the router running Phase IV returns the packet to the router running Phase V for error processing.

Figure 1-6 illustrates the translation of a DECnet Phase IV data packet to a Phase V CLNP packet. Routers in the network are configured either with Phase IV only or with both Phase IV and Phase V.

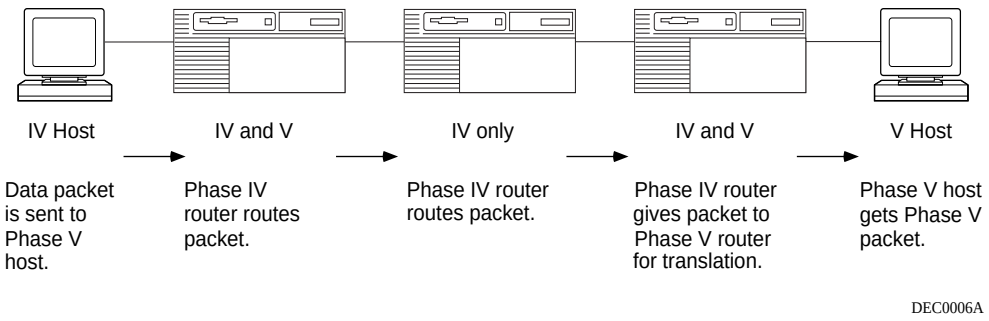

IV Host
IV and V
IV only
IV and V
V Host
Data packet is sent to Phase V host.
Phase IV router routes packet.
Phase IV router routes packet.
Phase IV router gives packet to Phase V router for translation.
Phase V host gets Phase V packet.
DEC0006A

Figure 1-6. Translation of a DECnet Phase IV Data Packet to a Phase V CLNP Packet

1. A Phase IV host sends a data packet to a Phase V end node. The Phase IV host routes the packet to a router running both Phase IV and Phase V.
2. Because the router has Phase IV configured, it routes the Phase IV data packet to the next router on the network, which also has Phase IV configured.
3. This router routes the Phase IV data packet to the next router on the network, which has both Phase IV and Phase V configured.
4. Because the destination address of the packet is a Phase V end node, the router maps the address to a Phase V address, and then looks it up in the Phase V forwarding tables. The router then translates the source address and packet header.
5. The router then forwards the packet to the Phase V end node.

Advertising Routes

With the DECnet IV to V Transition feature enabled, the only routing information exchanged between DECnet Phase IV and Phase V is end node addresses.

The Phase IV router advertises Phase V end nodes in Level 1 topology update packets. The DECnet Phase V router can reside in only one area. Therefore, the Phase V router advertises Phase IV end nodes in Level 1 link state packets only for the areas in common between Phase IV and Phase V.

DECnet IV to V Basic Transition Strategy

Nortel Networks uses a dual-stack approach to support the DECnet IV to V Transition feature. This approach provides the following advantages:

- Phase IV and Phase V routing are done in parallel. A router routes packets whose source and destination nodes operate the same phase of DECnet, using their native routing protocol.
- A router translates a packet when necessary and only once.
- You can transition routers incrementally rather than all at once.

The following strategy allows you to use the DECnet IV to V Transition feature to support a graceful migration from a Phase IV network to a Phase V network.

1. All routers run Phase IV with contiguous areas and contiguous Level 2 backbone.
2. All routers continue to run Phase IV. On an individual basis, routers run Phase V with the DECnet IV to V Transition feature enabled. All routers running Phase V are contiguous within areas.
3. All routers in the routing domain run Phase IV and Phase V with the DECnet IV to V Transition feature enabled.
4. Phase IV is turned off on an individual basis; continuity is not necessary at this point. If Phase IV routing fails for a particular DECnet data packet, then the router forwards the packet using Phase V.
5. All routers run Phase V. Only routers with adjacent Phase IV-only end nodes run Phase IV and Phase V with the DECnet IV to V Transition feature enabled. A Phase V host runs in Phase IV-compatible mode when it is on the same local area network (LAN) segment as a Phase IV host.

For details on adding the DECnet IV to V Transition feature and editing the parameters, refer to Chapter 3.

Static Routes

The Nortel Networks routing software for DECnet services allows you to configure *static routes* to another network or node for the Nortel Networks router. Static routes are manually configured routes that specify the transmission path a datagram must follow based on the datagram's destination address.

Use static routes and disable the sending of Level 1 and Level 2 topology update packets to reduce traffic over wide area networks (WANs) or slow links. Static routes restrict the paths that datagrams follow to paths you specifically configure.

For example, Figure 1-7 shows three Level 2 routers that reside in different areas. To configure a static route from Router A to Router C, you must specify the source address, next hop, and destination address. Because this is a route from Area 1 to Area 2, the static route type is Level 2.

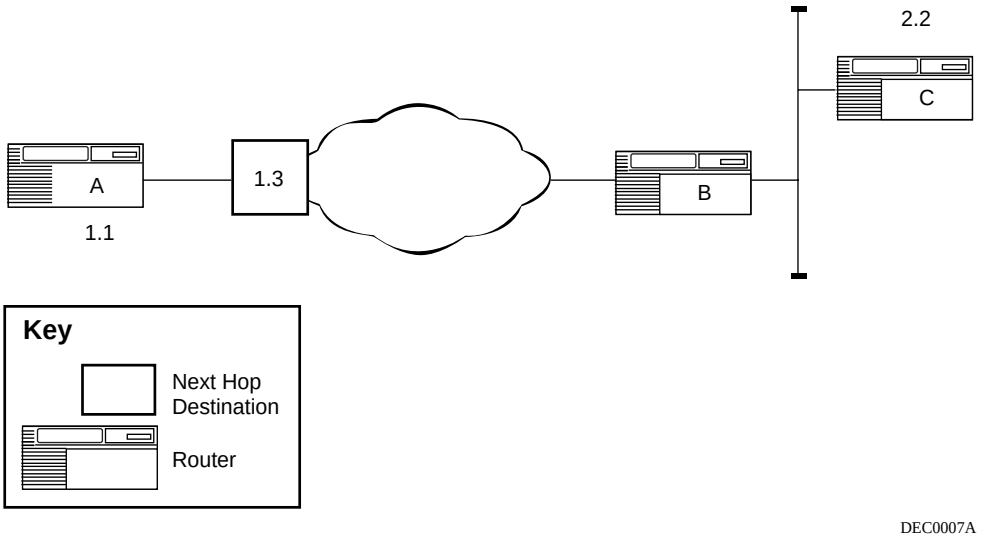


Figure 1-7. Static Routes Defined for Routers Residing in Different Areas

Refer to "Configuring Static Routes" in Chapter 3 for details on adding, editing, and deleting static routes.

Static Adjacency Support

The Nortel Networks routing software for DECnet services creates and maintains its adjacency database by periodically broadcasting Hello messages to its neighbors. In DECnet terminology, an *adjacency* is a directly connected circuit-neighbor pair toward which packets are forwarded by the router (a *neighbor* is an adjacent host). The neighbor can be a Level 1 or Level 2 router, or an end node.

The Nortel Networks routing software for DECnet services allows you to configure *static adjacencies* for the Nortel Networks router. Static adjacencies specify the DECnet and data link layer address of the neighbor, and the circuit used to reach the neighbor.

Unless a static adjacency is explicitly deleted from the system, it remains in the router's adjacency database -- even if the router never receives Hello messages from the adjacent host. Thus, by configuring static adjacencies and disabling Hello message generation, you reduce Hello message traffic between the router and its neighbors.

Note: Static adjacencies are recommended over wide area network lines to help reduce overhead traffic. Static adjacencies are not recommended over local area network connections, because if a remote node is removed from the network, the local router does not recognize the topology change.

For example, DECnet Routers A and B reside in the same area (Figure 1-8).

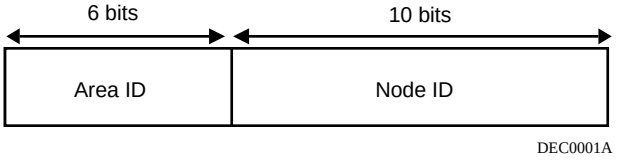


Figure 1-8. Static Adjacencies Defined for Routers Residing in the Same Area

The only network information that the routers need to exchange is Level 1 topology information. To reduce traffic overhead, do the following:

- Configure a static adjacency for interface S1 that specifies its neighbor -- interface S2 on Router B.

- Configure a static adjacency for interface S2 that specifies its neighbor -- interface S1 on Router A.
- Set the Router Hello parameter to Disable for both interfaces.

As a result, the routers know about each other's existence, even though no Hello messages are exchanged.

If two Level 2 routers reside in different areas, you can reduce both Hello message traffic and Level 1 topology traffic between the two systems by disabling the Router Hello parameter and the Level 1 Topology Update parameter for the connecting interfaces Figure 1-9. If you disable the Level 1 Topology Update parameter, you prevent the Nortel Networks router running DECnet from sending Level 1 topology update packets to other routers.

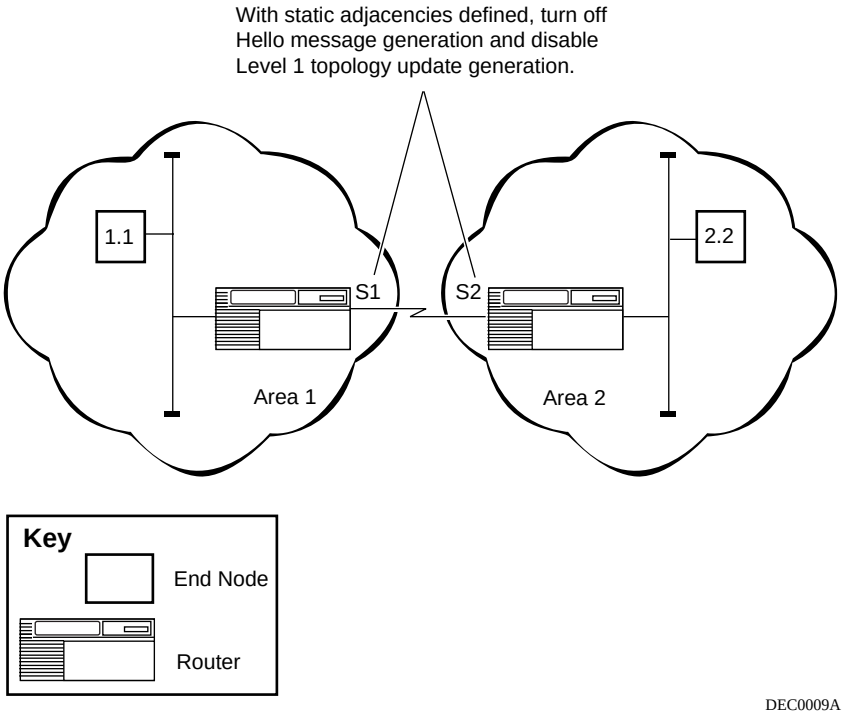


Figure 1-9. Static Adjacencies Defined for Routers Residing in Different Areas

You can also disable the Level 2 Topology Update parameter if you want to prevent the Nortel Networks router running DECnet from sending Level 2 topology update packets to other routers. In this case, you use static routes to establish transmission paths between connected routers.

Refer to Chapter 3 for details about configuring static adjacencies and setting the Router Hello, Level 1 Topology Update, and Level 2 Topology Update parameters.

For More Information

For technical details about DECnet protocol implementation, see *DECnet Digital Network Architecture Phase IV Routing Layer Function Specification, Version 2.0* (Digital Equipment Corporation, December 1983).

Chapter 2
Enabling DECnet Services

This chapter describes how to enable DECnet Phase IV services. It assumes you have read *Configuring Routers* and that you have:

1. **Opened a configuration file**
2. **Specified router hardware if this is a local mode configuration file**
3. **Selected the link- or net-module connector on which you are enabling DECnet Phase IV, or configured a WAN circuit if this connector requires one**

When you enable DECnet services, you are required to specify only a few parameters. The Configuration Manager supplies default values for the remaining parameters. If you want to edit these default values, refer to Chapter 3, “Editing DECnet Parameters.”

Note: Although you can accept the default values for most DECnet parameters, we recommend that you try to tune your DECnet configuration to closely match your actual configuration. Typically, when you customize the parameters, DECnet uses less local memory, enhancing DECnet performance.

For each DECnet parameter, this guide provides the default setting, valid parameter options, the parameter function, instructions for setting the parameter, and the management information base (MIB) object ID.

The Technician Interface lets you modify parameters by issuing **set** and **commit** commands that specify the MIB object ID. This process is equivalent to modifying parameters using Site Manager. For more information about using the Technician Interface to access the MIB, refer to *Using Technician Interface Software*.

Caution: The Technician Interface does not verify that the value you enter for a parameter is valid. Entering an invalid value can corrupt your configuration.

Enabling DECnet Phase IV on an Interface

To enable DECnet Phase IV on an interface:

1. **Select DECnet from the Select Protocols menu.**

   The Select Protocols menu appears after you either select a link- or net-module connector, or finish configuring a WAN circuit.

   The DECnet IV Configuration window appears (Figure 2-1).

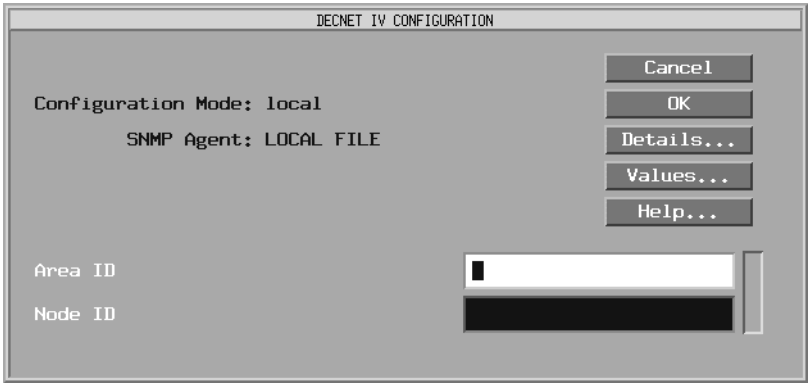


Figure 2-1. DECnet IV Configuration Window

2. **Configure the parameters using the descriptions that follow as a guide.**
3. **When you finish configuring the parameters, click on OK.**

   To edit the default values for DECnet parameters, refer to Chapter 3 for instructions.

Parameter:	**Area ID**
Default:	None
Options:	1 to 63
Function:	Specifies a unique DECnet Phase IV Area ID for this circuit. The Area ID is the first 6 bits of a DECnet Phase IV node address. You specify the Area ID on a circuit-by-circuit basis; that is, a single router can have individual circuits residing in different areas.
Instructions:	Enter the Area ID assigned to this circuit.
MIB Object ID:	1.3.6.1.4.1.18.3.5.2.3.1.1

Parameter:	**Node ID**
Default:	None
Options:	1 to 1023
Function:	Specifies a unique DECnet Node ID for this circuit. The Node ID is the last 10 bits of a DECnet node address. Note that individual circuits on a Nortel Networks router may have different Node IDs.
Instructions:	Enter the Node ID assigned to this circuit.
MIB Object ID:	1.3.6.1.4.1.18.3.5.2.3.1.2

Chapter 3
Editing DECnet Parameters

After you enable a DECnet interface, you can use Site Manager to:

- Edit DECnet parameters.
- Add, edit, or delete a static route, a static adjacency, or the DECnet IV to V Transition.
- Delete DECnet globally from the Nortel Networks router.

The instructions in this chapter assume that you have already configured at least one DECnet interface. If you have not yet configured a DECnet interface, or if you want to add additional DECnet interfaces, refer to Chapter 2, "Enabling DECnet Services."

Note: You must configure both DECnet Phase IV and OSI on each network interface participating in a DECnet IV to V Transition.

If you have a mixed Phase IV and Phase V network, see *Configuring OSI Services* for details on configuring OSI. For instructions on configuring DECnet filters, see *Configuring and Managing Routers with Site Manager.*

For each DECnet parameter, this guide provides the default setting, valid parameter options, the parameter function, instructions for setting the parameter, and the management information base (MIB) object ID.

The Technician Interface lets you modify parameters by issuing **set** and **commit** commands that specify the MIB object ID. This process is equivalent to modifying parameters using Site Manager. For more information about using the Technician Interface, refer to *Using Technician Interface Software*.

Caution: The Technician Interface does not verify that the value you enter for a parameter is valid. Entering an invalid value can corrupt your configuration.

Accessing DECnet Parameters

You access all DECnet parameters from the Configuration Manager window (Figure 3-1). See *Configuring and Managing Routers with Site Manager* for instructions on accessing this window.

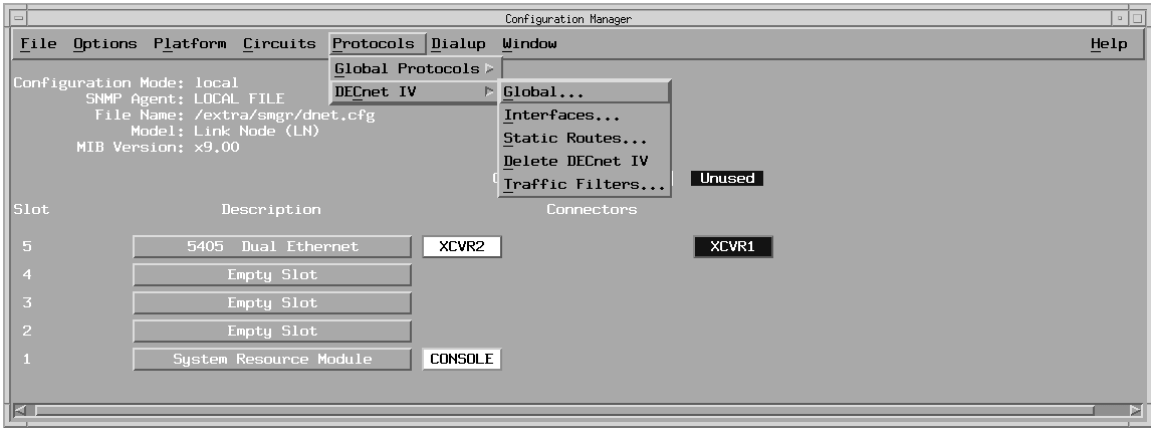


Figure 3-1. Configuration Manager Window

To customize the router software for DECnet services, edit any of these DECnet parameters:

- Global
- Interface
- Static route
- Static adjacency
- DECnet IV to V Transition

Editing DECnet Global Parameters

To edit the DECnet global parameters, begin at the Configuration Manager window (refer to Figure 3-1) and proceed as follows.

1. **Select Protocols > DECnet IV > Global.**

   The Edit DECnet Global Parameters window appears (Figure 3-2).

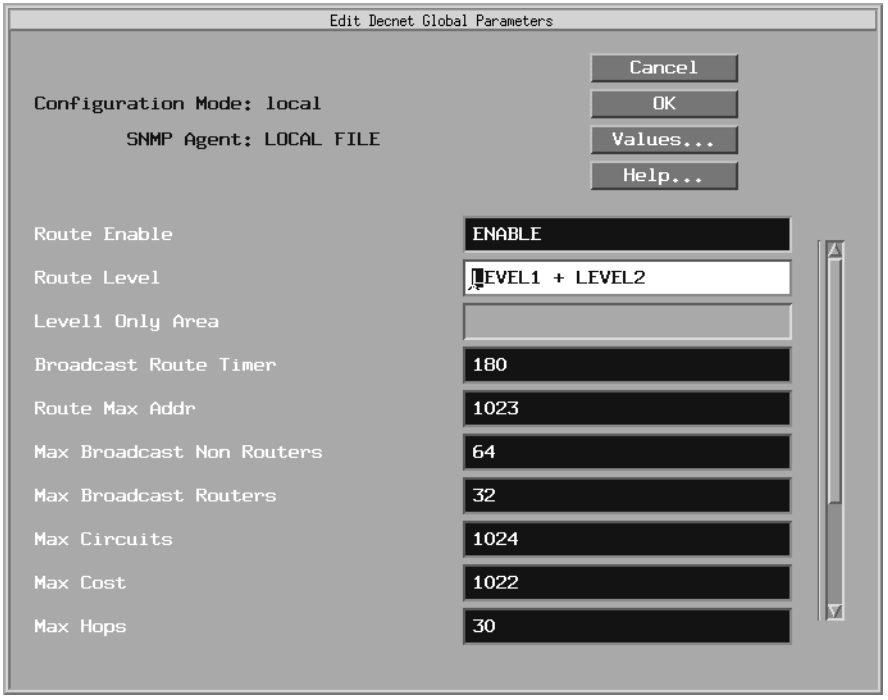


Figure 3-2. Edit DECnet Global Parameters Window

2. **Edit the parameters, using the descriptions in the next section as a guide.**
3. **Click on OK to save your changes and exit the window.**

   Site Manager returns you to the Configuration Manager window.

DECnet Global Parameter Descriptions

Use the following descriptions as a guide when you configure the parameters in the Edit DECnet Global Parameters window (refer to Figure 3-2).

Parameter:	**Route Enable**
Default:	Enable
Options:	Enable | Disable
Function:	Enables or disables DECnet routing on the entire Nortel Networks router.
Instructions:	Set to Disable only if you want to globally disable DECnet routing on all interfaces where it is configured. Otherwise, use the default setting.
MIB Object ID:	1.3.6.1.4.1.18.3.5.2.1.2

Parameter:	**Route Level**
Default:	Level 1 and Level 2
Options:	Level 1 and Level 2 | Level 1 Only
Function:	Determines whether the router performs both Level 1 and Level 2 routing or Level 1 Only routing.
Instructions:	Select Level 1 and Level 2 routing to maintain paths to all areas within a DECnet network. Select Level 1 Only to maintain paths to only those systems within the router's local area. If you select Level 1 Only routing, you can only configure router interfaces as Level 1 Only.
MIB Object ID:	1.3.6.1.4.1.18.3.5.2.1.16

Parameter:	**Level 1 Only Area**
Default:	1
Options:	1 to 63
Function:	Specifies the DECnet Area ID for all circuits if you configured the router as Level 1 Only. The Area ID is the first 6 bits of a DECnet node address.
Instructions:	Specify the Area ID by entering a number from 1 to 63. You cannot configure this parameter unless you first configure the router to perform Level 1 Only routing.
MIB Object ID:	1.3.6.1.4.1.18.3.5.2.1.20

Parameter:	**Broadcast Route Timer**
Default:	180
Options:	1 to 65535
Function:	Determines the maximum amount of time in seconds between routing updates that the router issues. If no routing update occurs before this timer expires, the router generates a routing update automatically.
Instructions:	Enter a number from 1 to 65535. If you want the Nortel Networks router to generate routing updates more frequently, enter a lower value than the current one.
MIB Object ID:	1.3.6.1.4.1.18.3.5.2.1.4

Parameter:	**Route Max Addr**
Default:	1023
Options:	1 to 1023
Function:	Specifies the highest Node ID contained within all areas.
Instructions:	We recommend accepting the default value. If you change the default, make certain to use the same value for each router in the network.
MIB Object ID:	1.3.6.1.4.1.18.3.5.2.1.6

Parameter:	**Max Broadcast Non Routers**
Default:	64
Options:	0 to 1023
Function:	Specifies the maximum number of end node adjacencies residing on all circuits for a single slot. The higher the number of adjacent end nodes, the greater the impact on the router's performance and memory use.
Instructions:	Consult your network topology drawing. If there are more than 64 end node adjacencies on any of the router's slots, increase this number to reflect your network topology.
MIB Object ID:	1.3.6.1.4.1.18.3.5.2.1.7

Parameter:	**Max Broadcast Routers**
Default:	32
Options:	0 to 1023
Function:	Specifies the maximum number of router adjacencies on all circuits for a single slot.
Instructions:	Consult your network topology drawing. If there are more than 32 router adjacencies on any of the router's slots, increase this number to reflect your network topology. Decrease this number if there are fewer than 32 router adjacencies on a single slot.
MIB Object ID:	1.3.6.1.4.1.18.3.5.2.1.8

Parameter:	**Max Circuits**
Default:	1024
Options:	1 to 1024
Function:	Specifies the highest circuit number that this router can recognize, that is, the maximum number of circuits that this router can recognize.
Instructions:	We recommend accepting the default value.
MIB Object ID:	1.3.6.1.4.1.18.3.5.2.1.9

Parameter:	**Max Cost**
Default:	1022
Options:	1 to 1022
Function:	Specifies the maximum path cost from this router to any destination node in the local area. The path cost is the sum of the individual circuit costs between this router and the destination node. The router declares a destination node unreachable if the least-cost path to the destination node exceeds this number.
Instructions:	Determine the maximum path cost between this router and any node in the area, and enter it here.
MIB Object ID:	1.3.6.1.4.1.18.3.5.2.1.10

Parameter:	**Max Hops**
Default:	30
Options:	1 to 30
Function:	Specifies the maximum path length in hops between this router and any other destination node in the local area. A hop is the logical distance between two nodes.
Instructions:	Calculate the maximum path length in hops from this router to any other destination node in the area. Double this number and enter it here.
MIB Object ID:	1.3.6.1.4.1.18.3.5.2.1.11

Parameter:	**Max Visits**
Default:	63
Options:	1 to 63
Function:	Detects routing loops by enabling the packet lifetime control, which limits the number of times a packet can pass through a router. If the router receives a packet that (1) is not destined for the router, and (2) whose Max Visits value is exceeded, the router discards the packet because it has traversed too many nodes.
Instructions:	Determine the maximum path length in hops between the two nodes farthest apart on the network. Enter a number that is at least as large as this value.
MIB Object ID:	1.3.6.1.4.1.18.3.5.2.1.12

Parameter:	**Area Max Cost**
Default:	1022
Options:	1 to 1022
Function:	Specifies the maximum path cost from this router to any other area in the network. The router declares a destination area unreachable if the least-cost path to the destination area exceeds this number.
Instructions:	Determine the total path cost of the longest path between this router and any other area in the network and enter it here.
MIB Object ID:	1.3.6.1.4.1.18.3.5.2.1.13

Parameter:	**Area Max Hops**
Default:	30
Options:	1 to 30
Function:	Specifies the maximum path length in hops from this router to any other destination area in the network. The router declares a destination area unreachable if the path length to the destination area exceeds this number.
Instructions:	Determine the maximum path length in hops from this router to any other destination area in the network. Double this number and enter it here.
MIB Object ID:	1.3.6.1.4.1.18.3.5.2.1.14

Parameter:	**Max Area**
Default:	63
Options:	1 to 63
Function:	Specifies the highest area number in your DECnet network, that is, the number of areas in your DECnet network. You may want to set this value lower than the default to conserve slot memory.
Instructions:	Refer to your network topology map, and then enter the highest area number.
MIB Object ID:	1.3.6.1.4.1.18.3.5.2.1.15

Editing DECnet Interface Parameters

To edit a DECnet interface, begin at the Configuration Manager window (refer to Figure 3-1) and proceed as follows.

1. **Select Protocols** > **DECnet IV** > **Interfaces.**

   The DECnet IV Interface List window appears (Figure 3-3). The window displays all interfaces on which DECnet is enabled.

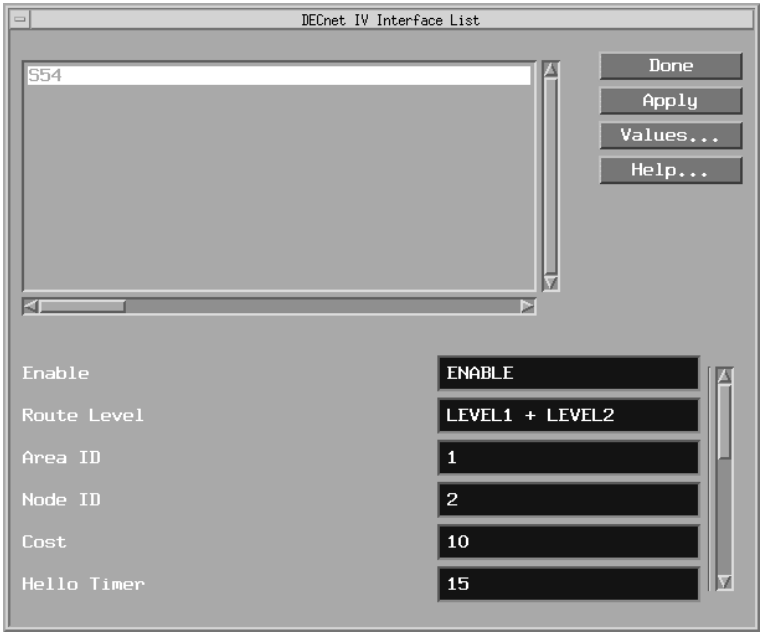


Figure 3-3. DECnet IV Interface List Window

2. **Click on the interface you want to edit.**
3. **Edit the parameters, using the descriptions in the next section as a guide.**
4. **Click on Apply to implement your changes.**
5. **Click on Done to exit the window.**

   Site Manager returns you to the Configuration Manager window.

Note: When you reconfigure an interface in dynamic configuration mode, DECnet restarts on that interface.

DECnet Interface Parameter Descriptions

Use the following descriptions as a guide when you configure the parameters in the DECnet IV Interface List window (refer to Figure 3-3).

Parameter:	**Enable**
Default:	Enable
Options:	Enable | Disable
Function:	Enables or disables DECnet over this circuit.
Instructions:	To disable DECnet over this circuit, set to Disable. Otherwise, accept the default setting.
MIB Object ID:	1.3.6.1.4.1.18.3.5.2.2.1.2

Parameter:	**Route Level**
Default:	Level 1 and Level 2
Options:	Level 1 and Level 2 | Level 1 Only
Function:	Determines whether the circuit performs both Level 1 and Level 2 routing or Level 1 Only routing. If you configured the router as Level 1 Only, the router automatically configures all circuits as Level 1 Only and this parameter does not appear in the DECnet IV Interface List window. If, at a later time, you change the router configuration to perform both Level 1 and Level 2 routing, all circuits will remain configured as Level 1 Only until you change them.
Instructions:	Select Level 1 and Level 2 to maintain paths to all areas within a DECnet network. Select Level 1 Only to maintain paths to only those systems within the router's local area.
MIB Object ID:	1.3.6.1.4.1.1.18.3.5.2.2.1.41

Parameter:	**Area ID**
Default:	None
Options:	1 to 63
Function:	Specifies a DECnet Area ID for this circuit. The Area ID is the first 6 bits of a DECnet node address. You specify the Area ID on a circuit-by-circuit basis, because a single Nortel Networks router can have individual circuits residing in different areas.
Instructions:	Enter the Area ID assigned to this circuit.
MIB Object ID:	1.3.6.1.4.1.18.3.5.2.2.1.4

Note: If you set the DECnet global parameter Route Level to Level 1 Only, the Area ID you specify in the Edit DECnet Global Parameters window overrides this parameter setting.

Parameter:	**Node ID**
Default:	None
Options:	1 to 1023
Function:	Specifies a unique DECnet Node ID for this circuit. The Node ID is the last 10 bits of a DECnet node address. Note that individual circuits on a Nortel Networks router can have different Node IDs.
Instructions:	Enter the Node ID assigned to this circuit.
MIB Object ID:	1.3.6.1.4.1.18.3.5.2.2.1.5

Parameter:	**Cost**
Default:	10
Options:	1 to 63
Function:	Specifies the relative cost of routing over this circuit. The sum of the individual outbound circuit costs from a source node to a destination node is the *total path cost*. When the router receives a data packet, it decides which circuit to forward the packet over based on the *least-cost path* toward the destination.
Instructions:	If you want the circuit to be used on a regular basis, assign it a low cost; similarly, assign the circuit a high cost if you do not want it used on a regular basis.
MIB Object ID:	1.3.6.1.4.1.18.3.5.2.2.1.9

Parameter:	**Hello Timer**
Default:	15
Options:	1 to 8191
Function:	Specifies in seconds how often the router broadcasts DECnet Hello messages to all nodes on this circuit.
Instructions:	Increase the Hello Timer if you want to reduce the amount of traffic traversing a slow line.
MIB Object ID:	1.3.6.1.4.1.18.3.5.2.2.1.10

Note: Inconsistent Hello Timer settings can cause confusion between DECnet routers and end nodes when rerouting occurs. We recommend that you set the Hello Timer parameter to the same value throughout your DECnet network.

Parameter:	**Max Routers**
Default:	33
Options:	0 to 33
Function:	Specifies the maximum number of routers attached to this circuit, including the router on which you are configuring DECnet services.
Instructions:	We recommend accepting the default value. If you change the default, refer to your network topology drawing to determine the number of routers and then enter it here.
MIB Object ID:	1.3.6.1.4.1.18.3.5.2.2.1.12

Parameter:	**Router Priority**
Default:	64
Options:	0 to 127
Function:	Determines which router becomes the designated router on a circuit. The designated router performs additional services for other nodes attached to the circuit. (All these nodes know the address of the designated router.) When an end node attempts to send a packet to a destination node that is not in its destination address cache, or does not reside on the circuit, it sends the packet to the designated router, which forwards the packet toward the destination. If you do not choose a designated router, or if you assign two or more routers the same priority, the router with the highest Node ID becomes the designated router by default.
Instructions:	Enter a router priority value from 0 to 127. If you want this node to be the designated router on this circuit, assign it the highest priority value among all routers on the circuit.
MIB Object ID:	1.3.6.1.4.1.18.3.5.2.2.1.13

Parameter:	**End Nodes MAC**
Default:	None
Options:	Frame Relay multicasting address | SMDS group address
Function:	Assigns the All Endnodes multicast MAC address value to this circuit for use over frame relay and SMDS WAN connections. The multicast MAC address value you specify here determines the destination address for DECnet end node broadcast traffic across the frame relay or SMDS cloud. This parameter is valid only if this circuit is a frame relay or SMDS circuit.
Instructions:	Enter the multicasting address (frame relay circuits) or group address (SMDS circuits) that you obtain from your service provider. If you do not specify a value for this parameter, broadcast traffic will be sent to *all* virtual circuits configured on the interface.
MIB Object ID:	1.3.6.1.4.1.18.3.5.2.2.1.31

Parameter:	**End Routers MAC**
Default:	None
Options:	Frame Relay multicasting address | SMDS group address
Function:	Assigns the AllRouters multicast MAC address value to this circuit for use over frame relay and SMDS WAN connections. This allows you to specify a destination address for DECnet Level 1 broadcast traffic across the frame relay or SMDS cloud. This parameter is valid only if this circuit is a frame relay or SMDS circuit.
Instructions:	Enter the multicasting address (frame relay circuits) or group address (SMDS circuits) that you obtain from your service provider. If you do not specify a value for this parameter, broadcast traffic will be sent to *all* virtual circuits configured on the interface.
MIB Object ID:	1.3.6.1.4.1.18.3.5.2.2.1.32

Parameter:	**Area Routers MAC**
Default:	None
Options:	Frame Relay multicasting address | SMDS group address
Function:	Assigns the AllAreaRouters multicast MAC address value to this circuit for use over frame relay and SMDS WAN connections. This allows you to specify a destination address for DECnet Level 2 broadcast traffic across the frame relay or SMDS cloud. This parameter is valid only if this circuit is a frame relay or SMDS circuit.
Instructions:	Enter the multicasting address (frame relay circuits) or group address (SMDS circuits) that you obtain from your service provider. If you do not specify a value for this parameter, broadcast traffic will be sent to *all* virtual circuits configured on the interface.
MIB Object ID:	1.3.6.1.4.1.18.3.5.2.2.1.33

Parameter:	**Node Hello**
Default:	Enable
Options:	Enable | Disable
Function:	When disabled, keeps the DECnet router from sending Hello packets to end nodes. Use this parameter with a static adjacency to limit the amount of traffic sent over a WAN connection.
Instructions:	To limit the amount of traffic traversing the WAN connection between static adjacencies, set this value to Disable. Otherwise, accept the default setting.
MIB Object ID:	1.3.6.1.4.1.18.3.5.2.2.1.34

Parameter:	**Router Hello**
Default:	Enable
Options:	Enable | Disable
Function:	When disabled, keeps the DECnet router from sending Hello packets to other routers. Use this parameter with a static adjacency to limit the amount of traffic sent over a WAN connection.
Instructions:	To limit the amount of traffic traversing the WAN connection between static adjacencies, set this value to Disable. Otherwise, accept the default setting.
MIB Object ID:	1.3.6.1.4.1.18.3.5.2.2.1.35

Parameter:	**Level 1 Topology Update**
Default:	Enable
Options:	Enable | Disable
Function:	When disabled, keeps the DECnet router from sending Level 1 topology update packets to other routers. Use this parameter with a static adjacency to limit the amount of traffic sent over a WAN connection.
Instructions:	To limit the amount of traffic traversing the WAN connection between static adjacencies, set this value to Disable. Otherwise, accept the default setting.
MIB Object ID:	1.3.6.1.4.1.18.3.5.2.2.1.36

Parameter:	**Level 2 Topology Update**
Default:	Enable
Options:	Enable | Disable
Function:	When disabled, keeps the DECnet router from sending Level 2 topology update packets to other routers. Use this parameter with a static adjacency to limit the amount of traffic sent over a WAN connection.
Instructions:	To limit the amount of traffic traversing the WAN connection between static adjacencies, set this value to Disable. Otherwise, accept the default setting.
MIB Object ID:	1.3.6.1.4.1.18.3.5.2.2.1.40

Configuring Static Routes

Configure static routes when you want to control which path the router uses to route DECnet traffic to another network or node.

To configure a static route, select Protocols > DECnet IV > Static Routes from the Configuration Manager window (refer to Figure 3-1). The DECnet Static Routes List window appears in Figure 3-4. It lists all static routes that are defined. If you did not add any static routes, none are listed.

Figure 3-4. DECnet Static Routes List Window

Adding a Static Route

To add a static route:

1. **Click on Add in the DECnet Static Routes List window (refer to Figure 3-4).**

   The DECnet Static Routes Configuration window appears (Figure 3-5).

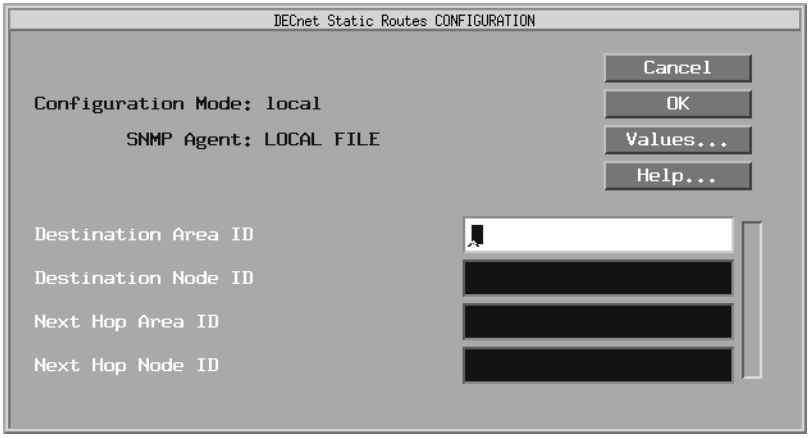


Figure 3-5. DECnet Static Routes Configuration Window

2. **Define the static route parameters, using the descriptions in the next section as a guide.**
3. **Click on OK.**

   The DECnet Static Routes List window displays the new static route you defined.
4. **Repeat steps 1 through 3 to add more static routes.**

DECnet Static Route Parameter Descriptions

Use the following descriptions as a guide when you configure the parameters in the DECnet Static Routes List and DECnet Static Routes Configuration windows (refer to Figure 3-4 and Figure 3-5).

Parameter:	**Static Route Enable**
Default:	Enable
Options:	Enable | Disable
Function:	Specifies the state (active or inactive) of the static route record in the DECnet routing tables.
Instructions:	Select Disable to make the static route record inactive in the DECnet routing table; the DECnet router will not consider this static route. Select Enable to make the static route record active again in the DECnet routing table. If you did not first add a static route, no default is displayed and you cannot configure this parameter. When you add a static route, this parameter defaults to Enable.
MIB Object ID:	1.3.6.1.4.1.18.3.5.2.8.1.2

Parameter:	**Route Type**
Default:	Level 2
Options:	Level 1 | Level 2
Function:	Specifies the type of traffic that is routed over this interface. Level 1 routing is for routing data within an area. Level 2 routing is for routing data between areas.
Instructions:	Select the traffic type for this static route. If you did not first add a static route, no default is displayed and you cannot configure this parameter. When you add a static route, this parameter defaults to Level 2.
MIB Object ID:	1.3.6.1.4.1.18.3.5.2.8.1.3

Parameter:	**Route Cost**
Default:	10
Options:	1 to 63
Function:	Specifies the total cost of a route to a destination address. Keep in mind that routes with lower costs are preferred routes. This means that you can force traffic over particular routes if you like.
Instructions:	Enter the route cost assigned to the static route. If you did not first add a static route, no default is displayed and you cannot configure this parameter. When you add a static route, this parameter defaults to 10.
MIB Object ID:	1.3.6.1.4.1.18.3.5.2.8.1.6

Parameter:	**Destination Area ID**
Default:	None
Options:	1 to 63
Function:	Specifies the Area ID portion of the static route's destination DECnet address.
Instructions:	Enter the Area ID of the area in which the destination of this route resides.
MIB Object ID:	1.3.6.1.4.1.18.3.5.2.8.1.4

Parameter:	**Destination Node ID**
Default:	None
Options:	1 to 1023
Function:	Specifies the Node ID portion of the static route's destination DECnet address.
Instructions:	Enter the Node ID of the destination end system of this static route.
MIB Object ID:	1.3.6.1.4.1.18.3.5.2.8.1.5

Parameter:	**Next Hop Area ID**
Default:	None
Options:	1 to 63
Function:	Specifies the DECnet Area ID of the intermediate system that is the next hop on the path to the destination end system.
Instructions:	Enter the Area ID assigned to the next-hop intermediate system.
MIB Object ID:	1.3.6.1.4.1.18.3.5.2.8.1.7

Parameter:	**Next Hop Node ID**
Default:	None
Options:	1 to 1023
Function:	Specifies the DECnet Node ID of the intermediate system that is the next hop on the path to the destination end system.
Instructions:	Enter the Node ID assigned to the next-hop intermediate system.
MIB Object ID:	1.3.6.1.4.1.18.3.5.2.8.1.8

Editing Static Route Parameters

To edit a static route:

1. **Select the static route that you want to edit from the list in the DECnet Static Routes List window (refer to Figure 3-4).**
2. **Edit the static route parameters, using the descriptions in the previous section as a guide.**
3. **Click on Apply to implement your changes.**
4. **Repeat steps 1 through 3 to edit additional static routes.**
5. **Click on Done to exit the window.**

Deleting a Static Route

To delete a static route:

1. **Select the static route that you want to delete from the list in the DECnet Static Routes List window (refer to Figure 3-4).**
2. **Click on Delete.**

   The DECnet Static Routes List window no longer displays the static route.
3. **Repeat steps 1 and 2 to delete additional static routes.**
4. **Click on Done to exit the window.**

Configuring Static Adjacencies

The DECnet router allows you to specify static transmission paths to adjacent hosts. The static adjacency may or may not be another router.

Adding a Static Adjacency

To add a static adjacency, begin at the Configuration Manager window (refer to Figure 3-1) and proceed as follows.

1. **Select Circuits > Edit Circuits.**

   The Circuit List window appears, which lists the circuits configured on the router (Figure 3-6).

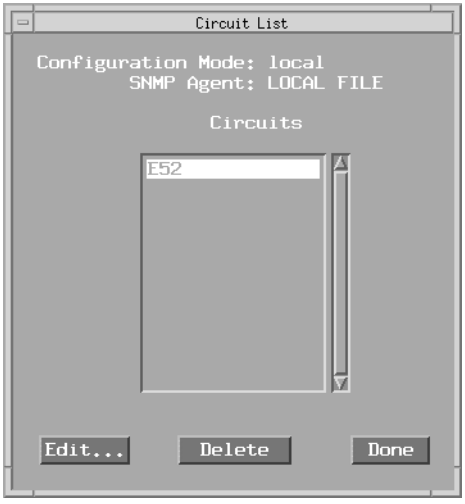


Figure 3-6. Circuit List Window

2. **Select a DECnet circuit from the list and click on Edit.**

   The Circuit Definition window for that circuit appears (Figure 3-7).

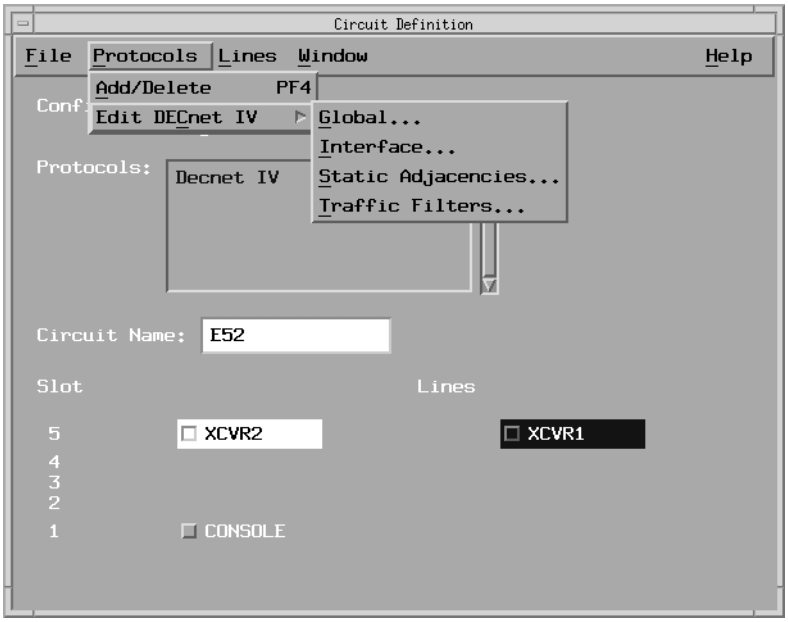


Figure 3-7. Circuit Definition Window

3. **Select Protocols > Edit DECnet IV > Static Adjacencies in the Circuit Definition window.**

   The DECnet Static Adjacent Hosts List window appears (Figure 3-8).

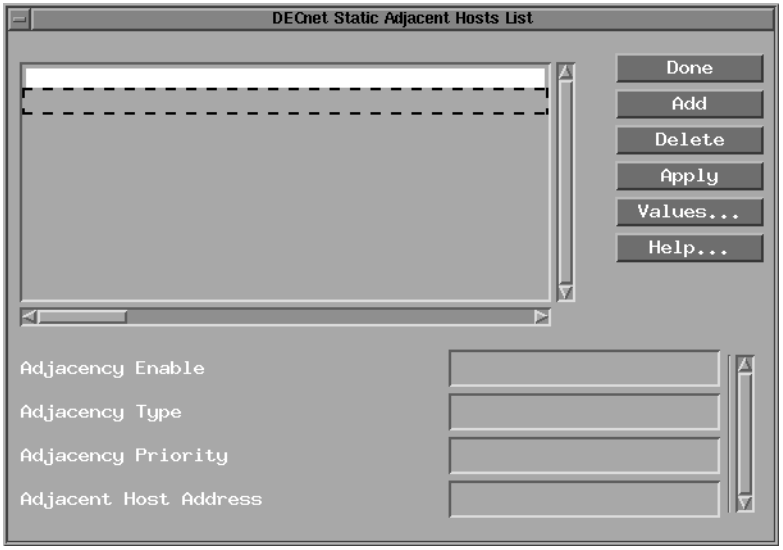


Figure 3-8. DECnet Static Adjacent Hosts List Window

4. **Click on Add.**

   The DECnet Static Adjacency Configuration window appears (Figure 3-9).

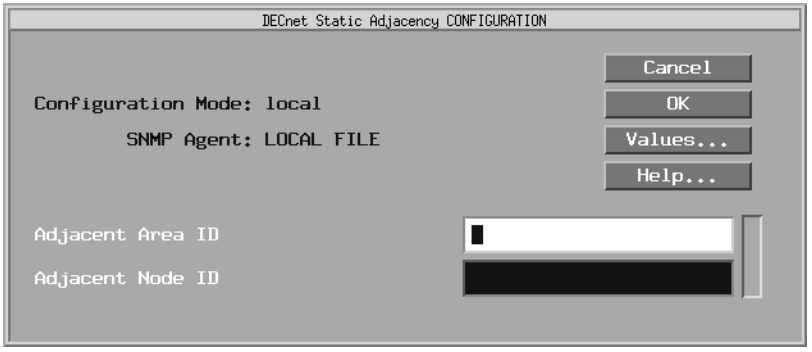


Figure 3-9. DECnet Static Adjacency Configuration Window

5. **Enter an adjacent Area ID and an adjacent Node ID, using the descriptions in the next section as a guide.**

6. **Click on OK to exit the window and save your changes.**

   The DECnet Static Adjacent Hosts List window reappears. The static adjacency you configured is displayed in the list.

7. **Repeat steps 4 through 6 to add additional static adjacencies.**

DECnet Static Adjacency Parameter Descriptions

Use the following descriptions as a guide when you configure the parameters in the DECnet Static Adjacent Hosts List window (refer to Figure 3-8) and the DECnet Static Adjacency Configuration window (refer to Figure 3-9).

Parameter:	**Adjacency Enable**
Default:	Enable
Options:	Enable | Disable
Function:	Specifies the state of the static adjacency record in the DECnet router's routing tables.
Instructions:	Select Disable to make the static adjacency record inactive in the DECnet routing table; the router will not consider this static adjacency. Select Enable to make this static adjacency record active again. This parameter defaults to Enable when you click on Add in the DECnet Static Adjacent Hosts List window.
MIB Object ID:	1.3.6.1.4.1.18.3.5.2.7.2

Parameter:	**Adjacency Type**
Default:	Area
Options:	Area | Routing IV | Non-Routing IV
Function:	Specifies whether the static adjacency is another router or an end node.
Instructions:	Select Area if the static adjacency is a Level 2 router, select Routing IV if the static adjacency is a Level 1 router, or select Non-Routing IV if the static adjacency is an end node.
MIB Object ID:	1.3.6.1.4.1.18.3.5.2.7.7

Parameter: **Adjacency Priority**

Default: None

Options: 0 to 127

Function: If the static adjacency is another router, this parameter specifies the router's priority for becoming the designated router on the network. The designated router performs additional services for other nodes attached to the circuit. (All these nodes know the address of the designated router.)

If you do not choose a designated router, or if you assign two or more routers the same priority, the router with the highest Node ID becomes the designated router by default.

Instructions: Enter a router priority value from 0 to 127. If you want this node to be the designated router on this circuit, assign it the highest priority value among all routers on the circuit.

MIB Object ID: 1.3.6.1.4.1.18.3.5.2.7.8

Parameter: **Adjacent Host Address**

Default: None

Options: Depends on the circuit type (see below).

Function: Specifies the address of an adjacent host.

Instructions: Enter the adjacent host address by following these guidelines:

- If this circuit is not an X.25 PDN circuit, enter the 48-bit Ethernet address of the static adjacency.
- If this circuit is an X.25 circuit that connects to an X.25 permanent virtual circuit (PVC), enter an X.25 logical channel number.
- If this circuit is an X.25 circuit that connects to an X.25 switched virtual circuit (SVC), then enter a valid X.121 address.

MIB Object ID: 1.3.6.1.4.1.18.3.5.2.7.9

Parameter:	**Adjacent Area ID**
Default:	None
Options:	1 to 63
Function:	Specifies the Area ID portion of the static adjacency's DECnet address.
Instructions:	Enter the Area ID assigned to the static adjacency.
MIB Object ID:	1.3.6.1.4.1.18.3.5.2.7.1.3

Parameter:	**Adjacent Node ID**
Default:	None
Options:	1 to 1023
Function:	Specifies the Node ID portion of the static adjacency's DECnet address.
Instructions:	Enter the Node ID assigned to the static adjacency.
MIB Object ID:	1.3.6.1.4.1.18.3.5.2.7.1.4

Editing Static Adjacency Parameters

To edit the parameters for an existing static adjacency:

1. **Select Circuits > Edit Circuits in the Configuration Manager window (refer to Figure 3-1).**

   The Circuit List window appears (refer to Figure 3-6), listing the circuits configured on the router.

2. **Select a DECnet circuit from this list and click on Edit.**

   The Circuit Definition window for the circuit appears (refer to Figure 3-7).

3. **Select Protocols > Edit DECnet IV > Static Adjacencies in the Circuit Definition window.**

   The DECnet Static Adjacent Hosts List window appears (refer to Figure 3-8).

4. **Click on the static adjacent host whose parameters you want to modify.**

5. **Edit the parameters you want to change.**

6. **Click on Apply to implement your changes.**
7. **Repeat steps 4 through 6 to edit additional static adjacencies.**
8. **Click on Done to exit the window.**

Deleting a Static Adjacency

To delete a static adjacency:

1. **Select Circuits > Edit Circuits in the Configuration Manager window (refer to Figure 3-1).**

   The Circuit List window appears (refer to Figure 3-6), listing the circuits configured on the router.

2. **Select a DECnet circuit from this list and click on Edit.**

   The Circuit Definition window for the circuit appears (refer to Figure 3-7).

3. **Select Protocols > Edit DECnet IV > Static Adjacencies in the Circuit Definition window.**

   The DECnet Static Adjacent Hosts List window appears (refer to Figure 3-8).

4. **Click on the static adjacent host that you want to delete.**
5. **Click on Delete to delete the static adjacency.**
6. **Repeat steps 4 and 5 to delete additional static adjacencies.**
7. **Click on Done to exit the window.**

Configuring the DECnet IV to V Transition

You create, edit, and delete the DECnet IV to V Transition from the Configuration Manager window. The following sections describe how to perform each of these tasks.

Note: You must configure both DECnet Phase IV and OSI on each network interface participating in a DECnet IV to V Transition. If you have a mixed Phase IV and Phase V network, refer to *Configuring OSI Services* for details on configuring OSI.

Creating the DECnet IV to V Transition

To create the DECnet IV to V Transition:

1. **In the Configuration Manager window (refer to Figure 3-1), select Protocols > OSI > Create DECnet IV to V Transition.**

   The Create DECnet IV to V Transition Parameters window appears (Figure 3-10).

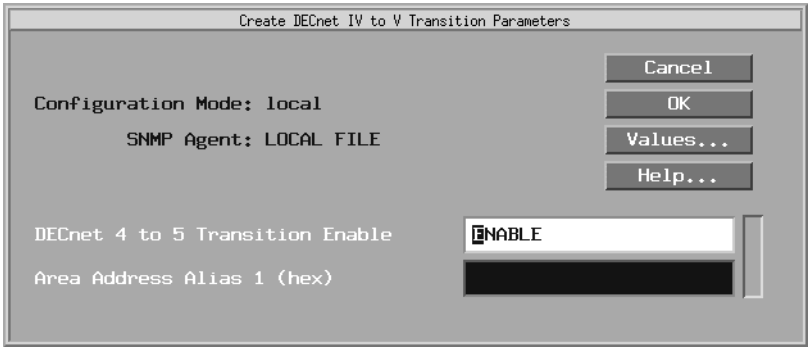


Figure 3-10. Create DECnet IV to V Transition Parameters Window

2. **Edit the parameters, using the following descriptions as a guide.**
3. **Click on OK to save your changes and exit the window.**

DECnet IV to V Transition Parameter Descriptions

Use the following descriptions as a guide when you configure the parameters in the Create DECnet IV to V Transition Parameters window (refer to Figure 3-10).

Parameter:	**DECnet 4 to 5 Transition Enable**
Default:	Enable
Options:	Enable | Disable
Function:	Enables or disables the DECnet IV to V Transition.
Instructions:	To enable the transition, select Enable. To turn this feature off, select Disable. After you enable the DECnet IV to V Transition feature, if you select Protocols > OSI, you will see that the edit and delete options are available.
MIB Object ID:	1.3.6.1.4.1.18.3.5.6.12.2

Parameter:	**Area Address Alias 1 (hex)**
Default:	None
Options:	Any valid area address
Function:	Assigns an area address alias to the router. The alias is a different area address that is assigned to the same router. For the DECnet IV to V Transition feature, the area address alias defines the Phase IV prefix and Phase IV area fields of the Phase IV-compatible address. (Refer to “Translating DECnet Addresses” in Chapter 1.)
Instructions:	Enter the area address alias in hexadecimal format. For the DECnet IV to V Transition feature, enter the Phase IV prefix (from 1 to 9 bytes), followed by 2 bytes of the Phase IV area address.
MIB Object ID:	1.3.6.1.4.1.18.3.5.6.1.17

Editing the DECnet IV to V Transition Parameters

To edit the DECnet IV to V Transition parameters, begin at the Configuration Manager window (refer to Figure 3-1) and proceed as follows.

1. **Select Protocols** > **OSI** > **Edit DECnet IV to V Transition.**

   The Edit DECnet IV to V Transition Parameters window appears. This window contains the same fields as the Create DECnet IV to V Transition Parameters window (refer to Figure 3-10).

2. **Edit the parameters, using the descriptions in the previous section as a guide.**

3. **Click on OK to implement your changes and exit the window.**

Deleting the DECnet IV to V Transition

To delete the DECnet IV to V Transition feature, begin at the Configuration Manager window (refer to Figure 3-1) and proceed as follows.

1. **Select Protocols** > **OSI** > **Delete DECnet IV to V Transition.**

   A window pops up and prompts:

   ```
   Do you REALLY want to delete OSI DECnet IV to V Transition?
   ```

2. **Click on OK.**

   The Configuration Manager window appears. The DECnet IV to V Transition feature is no longer configured on the router.

Deleting DECnet from the Router

To delete the DECnet routing protocol from all router circuits on which it is currently enabled, begin at the Configuration Manager window (refer to Figure 3-1) and proceed as follows.

1. **Select Protocols** > **DECnet IV** > **Delete DECnet IV.**

   A window pops up and prompts:

   ```
   Do you REALLY want to delete DECnet IV?
   ```

2. **Click on OK.**

   The Configuration Manager window appears. DECnet is no longer configured on the router.

If you examine the Configuration Manager window, you see that the connectors for circuits on which DECnet was the only protocol enabled are no longer highlighted. You must reconfigure the circuits for these connectors. Refer to *Configuring and Managing Routers with Site Manager* for details on configuring circuits.

Appendix A
DECnet Parameter Default Settings

Tables A-1 through A-5 show the default settings for the DECnet Phase IV and DECnet Phase IV to V Transition parameters in Site Manager. Use the Configuration Manager to edit any of the default settings listed here (refer to Chapter 3).

Table A-1. DECnet Phase IV Global Parameters

Parameter	Default
Route Enable	Enable
Route Level	Level 1 + Level 2
Level 1 Only Area	1
Broadcast Route Timer	180 s
Route Max Addr	1023
Max Broadcast Non Routers	64
Max Broadcast Routers	32
Max Circuits	1024
Max Cost	1022
Max Hops	30
Max Visits	63
Area Max Cost	1022
Area Max Hops	30
Max Area	63

Table A-2. DECnet Phase IV Interface Parameters

Parameter	Default
Enable	Enable
Route Level	Level 1 + Level 2
Area ID	None
Node ID	None
Cost	10
Hello Timer	15 s
Max Routers	33
Router Priority	64
End Nodes MAC	None
End Routers MAC	None
Area Routers MAC	None
Node Hello	Enable
Router Hello	Enable
Level 1 Topology Update	Enable
Level 2 Topology Update	Enable

Table A-3. DECnet Static Route Parameters

Parameter	Default
Static Route Enable	Enable
Route Type	Level 2
Route Cost	10
Destination Area ID	None
Destination Node ID	None
Next Hop Area ID	None
Next Hop Node ID	None

Table A-4. DECnet Static Adjacency Parameters

Parameter	Default
Adjacency Enable	Enable
Adjacency Type	Area
Adjacency Priority	None
Adjacent Host Address	None
Adjacent Area ID	None
Adjacent Node ID	None

Table A-5. DECnet IV to V Transition Parameters

Parameter	Default
DECnet 4 to 5 Transition Enable	Enable
Area Address Alias 1 (hex)	None

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